

# **INSTALLATION & SERVICE MANUAL**

This air conditioning system meets strict safety and operating standards. As the installer or service person, it is an important part of your job to install or service the system so it operates safely and efficiently.

For safe installation and trouble-free operation, you must:

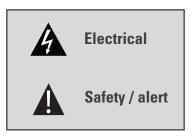
- Carefully read this instruction booklet before beginning.
- Follow each installation or repair step exactly as shown.
- Observe all local, state, and national electric codes.
- Pay close attention to all danger, warning, and caution notices given in this manual.

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This symbol refers to a hazard or unsafe practice, which can result in severe personal injury or death.

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This symbol refers to a hazard or unsafe practice, which can result in personal injury and the potential for product or property damage.





### Caution:

In order to avoid injury, take proper precaution when lifting heavy objects.

### **Caution**:

Sharp sheet metal edges can cause injury. When installing the unit, avoid accidental contact with sharp edges.

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This manual is a guide for properly installing the **Williamson-Thermoflo Wall-mounted split air conditioner.** Improper installation can result in unsafe and dangerous conditions that will void the factory warranty. Prior to installation, read these instructions and any instructions that are packaged with separate pieces of equipment that make up the system. Please read these instructions thoroughly and carefully before attempting installation or operation. Failure to follow these instructions may result in improper installation, operation, service, or maintenance, possibly resulting in fire, electrical shock, property damage, personal injury, or death.

#### **General**:

This device must be installed in compliance with national electrical standards.

#### About the indoor unit

- 1. There must be no obstacles near the air inlet and outlet.
- 2. Install the indoor unit on a surface that can support its weight.
- 3. Choose a position that enables the piping and wiring to be easily connected to the outdoor unit.
- 4. Leave enough clearance beneath the indoor unit to enable the filters to be removed without hinderance.
- 5. Maintain sufficient clearance around the indoor unit.
- 6. Make sure that the water from the drain hose runs away correctly and safely.
- 7- Install the indoor unit on a strong wall which is not subject to vibration.
- 8- Do NOT install the unit where it will be exposed to direct sunlight.

#### About outdoor unit

1. The outdoor unit must NEVER be placed on its side or upside down, as the compressor lubrication oil will run in the cooling circuit and seriously damage the unit.

3. Choose a location where the noise of the air conditioner when running and the discharged air do not disturb any neighbors.

4. Choose a position that enables the piping and wiring to be easily connected to the indoor unit.

5. Install the outdoor unit on a flat, stable surface that can support its weight and does not generate any unnecessary noise and vibration.

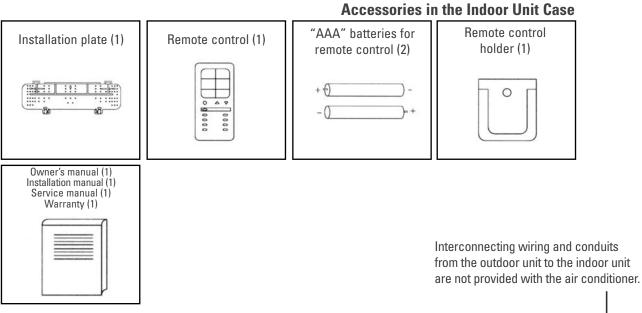
6. Position the outdoor unit so that the air flow is directed away from exterior walls, as indicated by the arrows on the top of the unit.

7. Maintain sufficient clearance around the outdoor unit.

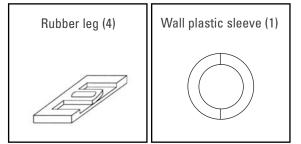
8. If the outdoor unit is installed above grade with brackets, ensure that its base is firmly fixed in position.

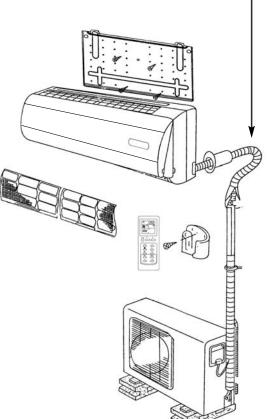
The following accessories are supplied with the air conditioner.

• The quantities are indicated in parenthesi s.



### Accessories in the Outdoor Unit Case

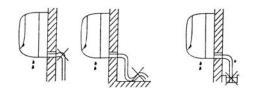




1. Before fixing the installation plate to a wall, you must determine the position of the 2 <sup>3</sup>/<sub>4</sub> in (70 mm) hole through which the conduit, piping and drain hose pass to connect the indoor unit to the outdoor unit. The piping and conduit can be connected from the: Rear, Right or Left side of indoor unit.

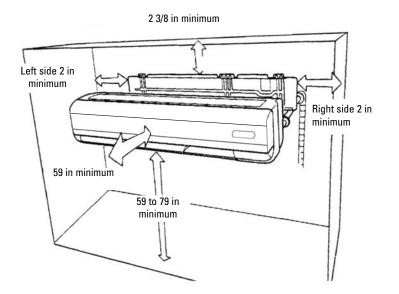


2. Determine the position of the pipe and drain hose hole using one of the figures shown, and drill the hole with an inner diameter of 70 mm ( $2\frac{3}{4}$  inch) so that it slants slightly downwards.





3. The correct mounting of the indoor unit is as shown below.



### **POSITION THE MOUNTING PLATE LEVEL**



CORRECT

INCORRECT

INCORRECT

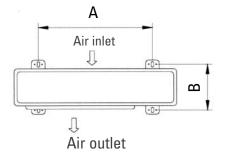


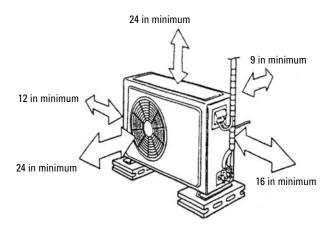
**Caution**:

Take servicing into consideration and leave the spacing shown in the figure above. Also install the unit where it can be removed.

Attach the outdoor unit with 4 anchor bolts and nuts (not supplied) positioned as per dimensions A, B.

	9SRAO-HE	12SRAO-HE   15SRAO-HE	18SRAO-HE	24SRAO-HE
A (in)	21 3/8	25	24 3/8	23
B (in)	13	13 3/8	15	15







### Caution:

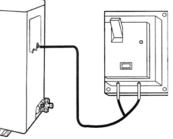
The outdoor unit should not be exposed to strong winds or where it is very dusty.

- Take your neighbors into consideration so that they will not be disturbed by air blowing into their window or by noise.

- Provide enough space between the wall and the unit, so that the airflow is not blocked. Also, for efficient operation, leave enough clearance on both sides and front.

1. The air conditioner shall be installed by a qualified technician in accordance with national and local electrical codes.

2. A disconnect switch shall be installed near the outdoor unit for easy disconnect of power to the air conditioner.



3. An electrical circuit dedicated to the air conditioner shall be used for the power supply to the air conditioner.

4. Interconnecting wiring and conduits from the outdoor unit to the indoor unit are not provided with the air conditioner.5. The supply voltage, size of over current protective device, and size of supply conductors for the air conditioner are as shown below.

Models		9SRA-HE	12SRA-HE	15SRA-HE	18SRA-HE	24SRA-HE
Nominal capacity	BTU	9000	12000	15000	18000	24000
Voltage rating		115	115	115	208~230	208~230
Frequency / Phase		60 / 1	60 / 1	60 / 1	60 / 1	60 / 1
Running amperes		7.7	10.6	10.6	6.8/6.4	9.6 / 8.7
Minimum circuit ampacity		15	15	15	15	20
Maximum overcurrent protection		15	25	25	15	20
(Time delay fuse or HACR type circuit breaker)						
Wire between outside unit and power source						
Wire gauge		14	14	14	14	12
Number of wires			2	wires + Grou	nd	
Wire between outside unit and inside unit						
Wire gauge		14	14	14	14	14
Number of wires			3	wires + Groun	nd	

6. Unit must be installed in accordance with all applicable federal, state and local codes.

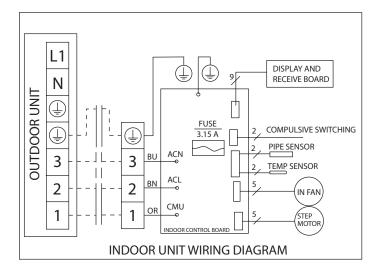
7. Check local electrical codes and regulations before obtaining wire.

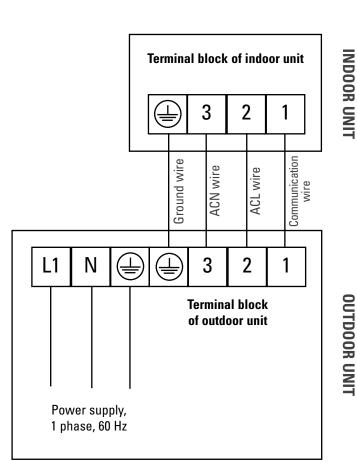
8. Use copper supply wires only.

9. Each wiring connection must be done tightly and in accordance with the wiring system diagram. Improper wiring may cause the unit to malfunction or become damaged.

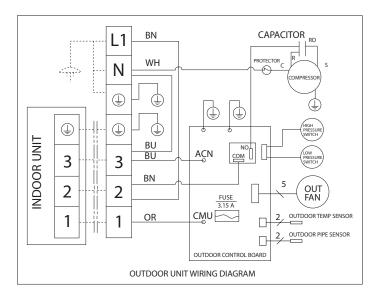
### 9SRA-HE | 12SRA-HE | 15SRA-HE (115V - 60Hz)

### **INDOOR UNIT**



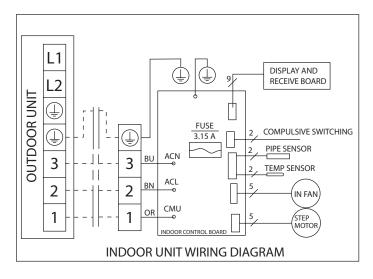


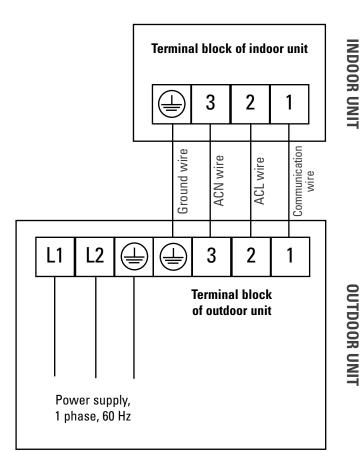
### **OUTDOOR UNIT**



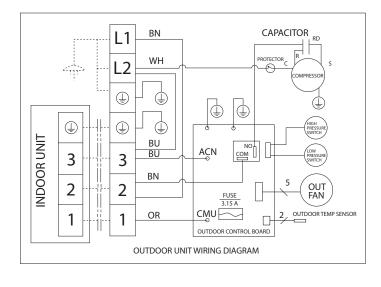
### 18SRA-HE | 24SRA-HE (208-230V - 60Hz)

### **INDOOR UNIT**





### **OUTDOOR UNIT**

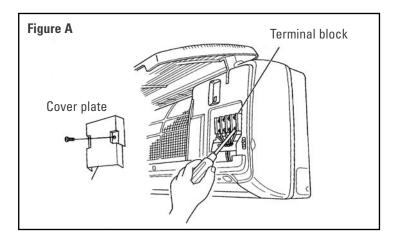


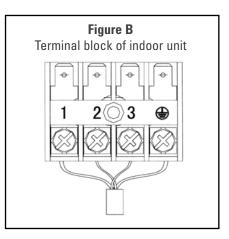
### **INDOOR UNIT**

1. The indoor unit is powered from the outdoor unit. A sufficient length of conduit and wiring shall be used from the outdoor unit to the indoor unit.

2. To access the terminal block inside the indoor unit, remove the screw on the cover plate. (See Fig. A.)

3. Connect the inter unit conductors to terminals marked 1,2,3,  $\bigoplus$  on the indoor unit corresponding to the same numbered terminals from the outdoor unit. (See Fig.B.)





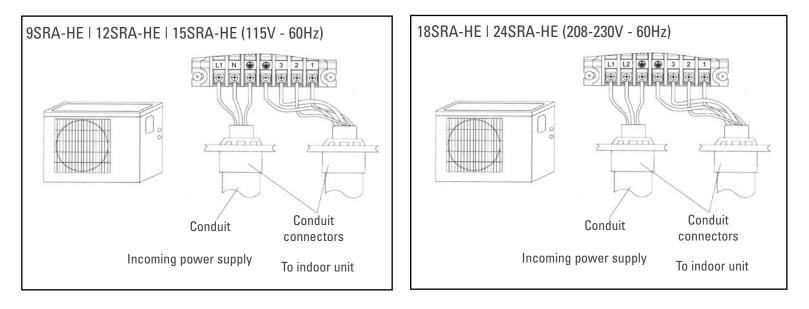
### **OUTDOOR UNIT**

1. Two conduit connection openings are provided on the outdoor unit: one for incoming power supply and the second one for the inter unit wiring.

2. Remove the terminal box cover to access the terminal block.

3. Connect the power supply conductors to terminal marked L1, N or L1, L2, and the grounding wire to terminal marked  $\oplus$ .

4. Connect the inter unit conductors to terminals marked  $\oplus$ , 3, 2, 1.

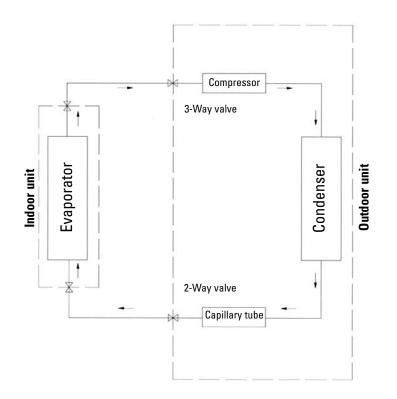


### When connecting the refrigerant tubing

- Keep all tubing runs as short as possible.
- Use the flare method for connecting tubing.

- Apply refrigerant lubricant to the matching surfaces of the flare and union tubes before connecting them, then tighten the nut with a torque wrench for a leak-free connection.

- Check carefully for leaks before starting the test run.



Models			9SRA-HE	12SRA-HE	15SRA-HE	18SRA-HE	24SRA-HE
Refrigeration Tubing							
Connection method			Flare	Flare	Flare	Flare	Flare
Refrigerant tube outer diameter	in.	Liquid	1/4	1/4	1/4	1/4	3/8
	in.	Suction	1/2	1/2	1/2	5/8	5/8
Limit of tubing length	ft.		49	49	49	49	49
Limit of elevation difference between the two units	ft.		20	20	20	20	20



### Caution:

The compressor POE oil for R-410A units is extremely susceptible to moisture absorption and could cause compressor failure. Do not leave system open to atmosphere any longer than necessary for installation.

### **General Information**

Systems using R-410A refrigerant run at a pressure of approximately 1.6 times that of similar systems using R-22 and the energy efficiency is comparable. The R-410A refrigerant is a 50:50 mixture of R-32 and R-125.

When installing equipment using R-410A refrigerant, there are a number of standards that must be met:

- Ester oil is used for R-410A.
- It's important to work with absolute cleanliness.
- Brazing must be done with the use of Nitrogen.
- The system must always be charged in the liquid state.

When refrigerant R-410A is used, the composition will differ depending on whether or not it is a gaseous state. Consequently, always charge the refrigerant while it is in a liquid state.

### General Precautions – Refrigerant leaking

The composition of refrigerant R-410A changes when it is gaseous state. Thus, when there is a refrigerant leak the basic performance of the air conditioner may be degraded because of a change in composition of the remaining refrigerant.

Therefore, do not add new refrigerant. Instead, recover the remaining refrigerant with the refrigerant recovery unit. Then, after evacuation, totally recharge the unit with the specified amount of new refrigerant at it's normal mixed composition state.

### **Tubing Precautions**

The refrigerant R-410A is less is more easily affected by dust or moisture than R-22 refrigerant. Make sure to temporally cover the ends of the tubing with caps or tape prior installation.

Never use tubing which is less than 0.03 inch in thickness (Standard Specification ASTM B-280), since air conditioners with R-410A refrigerant are subject to higher pressures than those using R-22 refrigerant.



### **Caution**:

Remove the protection caps on the pipes and connect the assembly piping to each connector. First, tighten the nuts manually and then with a wrench by applying the tightening torque shown below.

Applicable size	Class 2 (for R410A) Diamètre (mm) x Tightening torque (Nm)
1/4 "	17 x 14 to 18
3/8 "	22 x 34 to 42
1/2 "	26 x 49 to 61
5/8"	29 x 68 to 82
3/4 "	36 x 100 to 120

### Flare nut size and tightening torque

Condensing unit liquid and suction valves are closed to contain the charge within the unit. The unit is shipped with the valve stems closed and caps installed. Do not open the valves until the system is evacuated.

1. Connect the vacuum pump with 250-micron capability to the services valves.

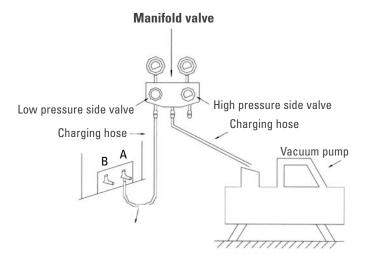
2. Evacuate the system to 250 microns or less using suction and liquid service valves. Using both valves is necessary for some compressors create a mechanical seal separating the sides of the system.

3. Close pump valve and hold vacuum for 10 minutes. Typically pressure will rise during this period

• If the pressure rises to 1000 microns or less and remains steady the system is considered leak-free; proceed to startup.

• If the pressure rises above 1000 microns but holds steady below 2000 microns, moisture and/or noncondensibles may be present or the system may have a small leak. Return to step 2: If the same result is encountered, check for leaks as previously indicated and repair as necessary then repeat evacuation.

• If pressure rises above 2000 microns, a leak is present. Check for a leaks as previously indicated and repair as necessary then repeat evacuation.





### **Caution**:

Refrigerant must not be discharged into the atmosphere.

After connecting the piping, check the joints for leakage with a gas leak detector.

Refrigerant suitable for a piping length of 20 ft (6 m) is charged in the outdoor unit at the factory. When the pipe is longer than 20 ft (6 m), additional charging is necessary. This operation can only be performed by a qualified refrigeration specialist. Additional amount must be added for each extra 3.3 ft (1 m), see the table below:

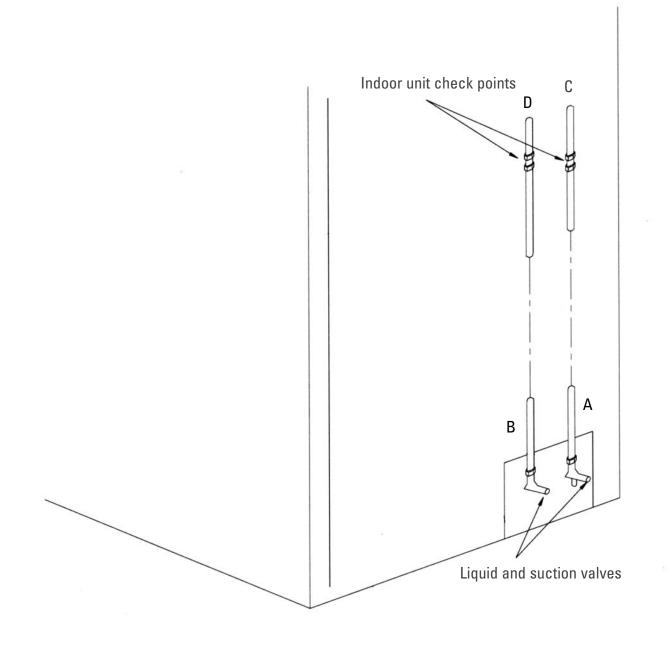
Models	9SRA-HE	12SRA-HE   15SRA-HE   18SRA-HE	24SRA-HE	
Additional refrigerant	20 g (0.7 oz)	30 g (1.06 oz)	40 g (1.41 oz)	

Models	9SRA-HE   12SRA-HE   15SRA-HE   18SRA-HE   24SRA-HE
Limit of tubing length ft (m)	49 (15)
Limit of elevation between the two unit	20 (6)

### Check that no gas escapes from the connections by using a leak detector or soapy water.

A and B are the liquid and suction valves of the outdoor unit.

C and D are the extremities of the indoor unit flared connections.



Perform the operation test after completing the gas leak check of the flare nut connections and the electrical connections.

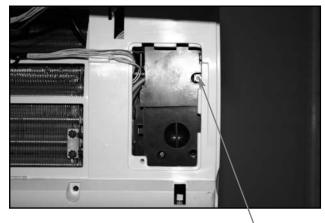
1. To begin the test, turn on the power.

2. Press the auxiliary control button in the indoor unit or use the remote control to start the unit.

3. Check that all air conditioner functions are operating normally. A protection feature prevents the air conditioner from being started immediately after the unit has been turned off. There is a delay of 3 minutes for the air conditioner to restart and operate.

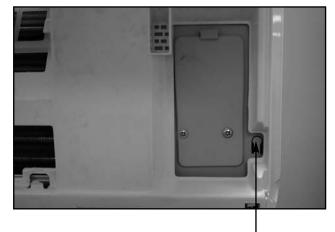
4. Press the auxiliary control button to end the operation test.

#### 9 000-12 000 BTU



Auxiliary control button

15 000-18 000-24 000 BTU



Auxiliary control button

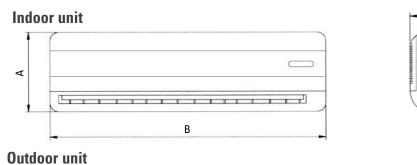
#### **SPECIFICATIONS**

MODELS		9SRA-HE	12SRA-HE	15SRA-HE	18SRA-HE	24SRA-HE		
Performance ra	tings							
Nominal capaci	ty	BTU/h	Cooling	9 000	12 000	15 000	18 000	24 000
S.E.E.R	·	BTU/hW	Cooling	15	13.5	14	13.5	13
Refrigerant type				R-410A	R-410A	R-410A	R-410A	R-410A
Dehumidifying o	apacity	Pt./H		1.9	3.1	3.5	4.1	5.2
Airflow circulati		CFM		382	441	559	647	765
Indoor sound ra	ting (High-Medium-Low)	dB(A)		44-40-33	45-42-34	47-44-40	48-44-40	52-49-45
Outdoor sound	rating	dB(A)		50	52	55	56	59
Temperature	Indoor air intake	°F (°C)	Maximum	95 (35)	95 (35)	95 (35)	95 (35)	95 (35)
		· - /	Minimum	64 (18)	64 (18)	64 (18)	64 (18)	64 (18)
	Outdoor air intake	°F (°C)	Maximum	109 (43)	109 (43)	109 (43)	109 (43)	109 (43)
		· - /	Minimum	32 (0)	32 (0)	32 (0)	32 (0)	32 (0)
<b>Electrical data</b>					, , , ,			
Voltage rating		V		115	115	115	208~230	208~230
Frequency / Pha	ise	Hz/ø		60 / 1	60 / 1	60 / 1	60 / 1	60 / 1
Running ampere	es	Α	Cooling	7.7	10.6	10.7	6.8 / 6.4	9.6 / 8.7
Minimum circui	t ampacity	А		15	15	15	15	20
	urrent protection	А		15	25	25	15	20
(Time delay fuse	e or HACR type circuit breaker)				-		_	
<b>Refrigeration tu</b>	bing							
Connection met	hod			Flare	Flare	Flare	Flare	Flare
Refrigerant tube	e outer diameter	in.	Liquid	1/4	1/4	1/4	1/4	3/8
-			Suction	1/2	1/2	1/2	5/8	5/8
Limit of tubing le	ength	ft.		49	49	49	49	49
Limit of elevation	difference between the two units	ft.		20	20	20	20	20
Dimensions & v	veight							
Indoor unit	Dimensions	in.	Width	31 1/2	31 1/2	38 3/4	38 3/4	42 1/2
			Height	10 7/8	10 7/8	12 5/8	12 5/8	13
			Depth	8 1/4	8 1/4	7 1/2	7 1/2	9 1/4
	Weight	lbs	Shipping	22	22	33	33	39
	5		Net	19	19	29	29	35
Outdoor unit	Dimensions	in.	Width	31 3/4	33 7/8	33 7/8	37 1/2	38 1/4
			Height	23 1/2	25 5/8	25 5/8	33 3/4	37 1/2
			Depth	11 1/4	12	12	13 3/4	14 1/4
	Weight	lbs	Shipping	92	101	101	139	150
			Net	88	95	95	130	141

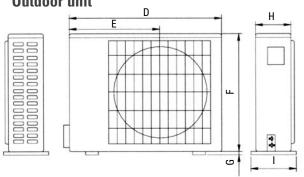
\*Note: Design and specifications are subject to change without notice for product improvement. Comply with ARI STANDARD 210/240.



Models: 9SRA-HE | 12SRA-HE | 15SRA-HE | 18SRA-HE | 24SRA-HE

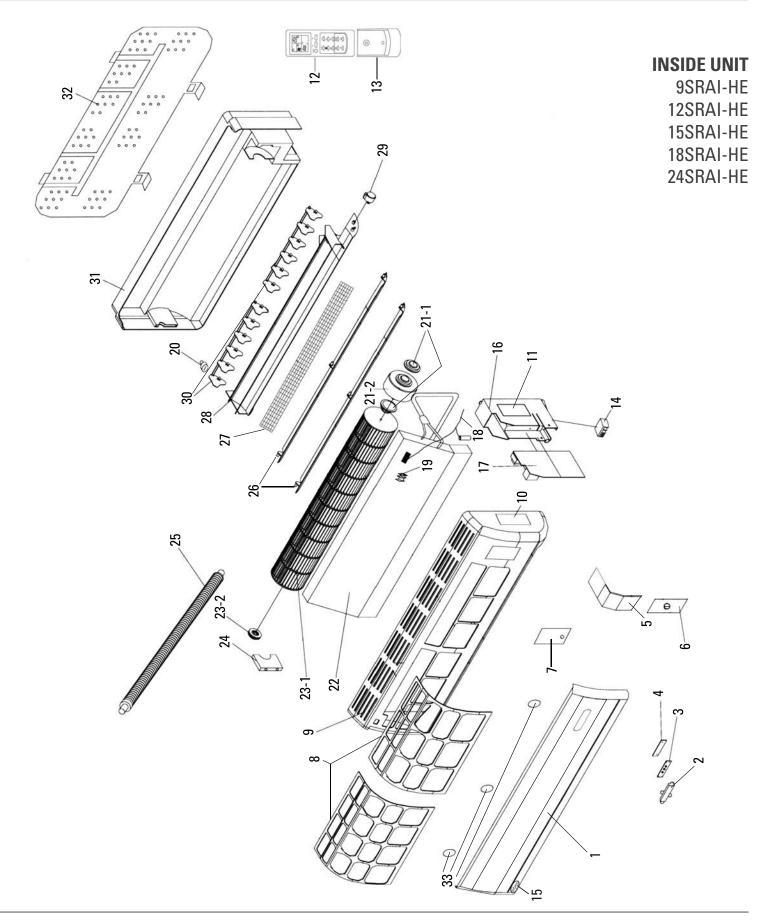


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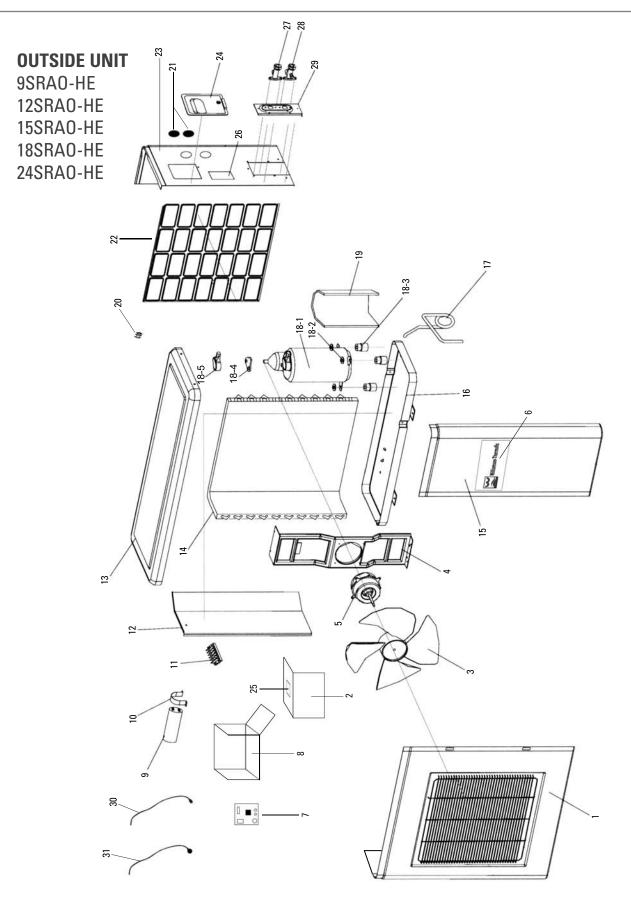
In	9SRA-HE	12SRA-HE	15SRA-HE	18SRA-HE	24SRA-HE
Α	10 7/8	10 7/8	12 5/8	12 5/8	13
В	31 1/2	31 1/2	38 3/4	38 3/4	43 1/2
C	8 1/4 8 1/4		7 1/2	7 1/2 7 1/2	
D	31 3/4 33 7/8		33 7/8	37 1/2	38 1/4
E	11	12	12	14	14 1/2
F	23	25	25	32 1/4	36
G	<b>G</b> 1/2 5/8		5/8	1 1/2	1 1/2
Н	11 1/4	12	12	13 3/4	14 1/4
I	14 1/8	14 3/4	14 3/4	16 1/4	16 1/4

# PARTS DIAGRAM (INDOOR UNIT)



Inside unit - spare parts								
REF. NO	DESCRIPTION	QTY	9SRAI-HE	12SRAI-HE	15SRAI-HE	18SRAI-HE	24SRAI-HE	
1	Faceplate (including display glass)	1	P00843	P00843	P00844	P00844	P00845	
2	Lamp board holder	1	P00846	P00846	P00864	P00864	P00865	
3	Lamp Board (3 lights) + infrared lense	1	P00847	P00847	P00848	P00848	P00849	
4	Lamp board back cover	1	P00850	P00850	P00866	P00866	P00867	
5	Control Box Cover	1	P00851	P00851	P00852	P00852	P00853	
6	Terminal block Cover	1	P00854	P00854	P00856	P00856	P00857	
7	Plastic Cover	1	P00855	P00855	N/A	N/A	N/A	
8	Filters	2	P00858	P00858	P00859	P00859	P00860	
9	Middle Base	1	P00861	P00861	P00862	P00862	P00863	
10	Rating plate (WILLIAMSON)	1	L00140	L00141	L00142	L00143	L00144	
11	Wiring circuit diagram	1	L00027	L00027	L00027	L00027	L00027	
12	Wireless remote control	1	P00874	P00874	P00874	P00874	P00874	
13	Wireless remote control holder	1	P00875	P00875	P00875	P00875	P00875	
14	Terminal Block	1	P00876	P00876	P00876	P00876	P00876	
15	Nameplate (WILLIAMSON)	1	L00138	L00138	L00138	L00138	L00138	
16	Control Box	1	P00878	P00878	P00879	P00879	P00880	
17	Controller PCB	1	P00881	P00868	P00869	P00870	P00871	
18	Sensors	1	P00882	P00882	P00882	P00882	P00882	
19	Sensor Bracket	1	P00883	P00883	P00883	P00883	P00883	
20	Rubber plug (back drain)	1	P00884	P00884	P00885	P00885	P00885	
21	Fan Motor Assembly	kit	K00086	K00086	K00087	K00088	K00089	
21-1	Fan motor cushion	1	P00889	P00889	P00890	P00872	P00891	
21-2	Fan motor	1	P00892	P00892	P00893	P00873	P00894	
22	Evaporator Assembly	1	P00895	P00895	P00896	P00896	P00897	
23	Cross Flow Fan Assembly	kit	K00090	K00090	K00091	K00091	K00092	
23-1	Cross Flow Fan	1	P00901	P00901	P00902	P00902	P00903	
23-2	Cushion - Cross flow fan	1	P00904	P00904	P00905	P00905	P00906	
24	Left Cover (Cross flow fan)	1	P00907	P00907	P00908	P00908	P00909	
25	Drain Hose	1	P00910	P00910	P00911	P00911	P00912	
26	Blade (vertical movement)	1 or 2	P00913	P00913	P00914	P00914	P00915	
27	Fan guard metal grid	1	P00916	P00916	P00917	P00917	P00918	
28	Discharge frame assembly	1	P00919	P00919	P00920	P00920	P00921	
29	Step Motor	1	P00877	P00877	P00886	P00886	P00924	
30	Louvers (horizontal movement)	2	P00925	P00925	P00926	P00926	P00927	
31	Base Assembly	1	P00928	P00928	P00929	P00929	P00930	
32	Wall Hook Bracket	1	P00931	P00931	P00932	P00932	P00933	
33	Screw cap	3	P00898	P00898	P00899	P00899	P00900	

# PARTS DIAGRAM (OUTDOOR UNIT)



	Outside unit - spare parts									
REF. NO	DESCRIPTION	QTY	9SRAO-HE	12SRAO-HE	15SRAO-HE	18SRAO-HE	24SRAO-HE			
1	Cabinet   Front L   Painted (including fan cover)	1	P00730	P00731	P00731	P00732	P00733			
2	Control box cover	1	P00734	P00734	P00734	P00734	P00734			
3	Propeller fan	1	P00738	P00738	P00738	P00739	P00739			
4	Motor bracket	1	P00740	P00741	P00741	P00742	P00743			
5	Fan motor	1	P00744	P00744	P00744	P00745	P00745			
6	Nameplate (WILLIAMSON)	1	L00139	L00139	L00139	L00139	L00139			
7	PCB outdoor	1	P00747	P00747	P00747	P00748	P00748			
8	Control box	1	P00749	P00735	P00735	P00750	P00751			
9	Capacitor   Compressor	1	P00752	P00752	P00752	P00754	P00755			
10	Capacitor clamp	1	P00756	P00756	P00756	P00758	P00736			
11	Terminal block	1	P00757	P00757	P00757	P00759	P00759			
12	Divider wall	1	P00760	P00761	P00761	P00737	P00762			
13	Cabinet   top   Painted	1	P00763	P00764	P00764	P00746	P00765			
14	Condenser assembly	1	P00766	P00767	P00767	P00768	P00769			
15	Cabinet   Front R   Painted	1	include with ref. #1	include with ref. #1	include with ref. #1	P00753	include with ref. #1			
16	Base Assembly / Painted	1	P00770	P00771	P00771	P00773	P00774			
17	Capillary assembly	1	P00775	P00776	P00776	P00777	P00777			
18	Compressor assembly	Kit	K00082	K00083	K00083	K00084	K00085			
18-1	Compressor	1	P00783	P00784	P00784	P00785	P00786			
18-2	Special nut   M8	3	P00787	P00787	P00787	P00787	P00787			
18-3	Rubber seat	3	P00791	P00791	P00791	P00793	P00794			
18-4	Terminal gasket	1	P00795	P00795	P00795	P00797	P00797			
18-5	Terminal cover	1	P00799	P00799	P00799	P00801	P00801			
19	Noise insulation	1	P00803	P00803	P00803	P00805	P00805			
20	Sensor bracket	1	P00807	P00807	P00807	P00807	P00807			
21	Rubber caps	2	P00811	P00811	P00811	P00811	P00811			
22	Steel Grid	1	P00812	P00813	P00813	P00814	P00815			
23	Cabinet   Back R   Painted	1	P00816	P00817	P00817	P00818	P00819			
24	Side plastic cover	1	P00820	P00821	P00821	P00823	P00824			
25	Electric Diagram	1	L00028	L00028	L00028	L00029	L00029			
26	Rating Plate (WILLIAMSON)	1	L00145	L00146	L00147	L00148	L00149			
27	Two-Way valve (Liquid)	1	P00831	P00832	P00832	P00830	P00833			
28	Three-Way valve (Succion)	1	P00829	P00834	P00834	P00835	P00836			
29	Valve panel	1	P00837	P00838	P00838	P00839	P00840			
30	Outdoor heat exchanger thermistor	1	P00841	P00841	P00841	P00841	P00841			
31	Discharge temperature thermistor	1	P00842	P00842	P00842	P00842	P00842			
32	Rubber legs	4	P00772	P00772	P00772	P00772	P00772			
33	Low pressure switch	1	P00945	P00945	P00945	P00945	P00945			
34	High pressure swicth	1	P00946	P00946	P00946	P00946	P00946			



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